MODEL III

BASIC COURSE

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Radio Shack TRS-80 SOFTWARE™

CUSTOM MANUFACTURED IN USA BY RADIO SHACK, A DIVISION OF TANDY CORP.

Important Note to Model III Users

From time to time, Radio Shack may release new versions of TRSDOS, the TRS-80 disk operating system. Check with your local Radio Shack or the *TRS-80 Microcomputer News* for notices and instructions on these enhanced versions of TRSDOS.

If you receive a new version of TRSDOS, read the following before making any modifications to your existing software packages (applications, languages, or system utilities):

- Do not convert your Radio Shack software packages for use with the new version of TRSDOS unless you are instructed to do so.
- Before converting a Radio Shack supplied Model I software package to a Model III format, check to see if Radio Shack provides a Model III version of the package. If so, you should obtain a copy of that version.
- If you're using several different software packages, press the RESET button whenever you change software.

Thank-You!

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BASIC Course

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FORT WORTH, TEXAS 76102

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Table of Contents

Introduction

The BASIC Course consists of two Model III diskettes which contain a beginning course in Model III BASIC. The course is designed for a Model III Computer with a minimum of 32K and two disk drives. This course does not assume any previous experience with BASIC.

The lessons are designed so that you will be able to write simple programs within a matter of minutes. By using the BASIC Course and your Operation and BASIC Language Reference Manual, you should be able to write programs in BASIC. This BASIC Course is intended as a primary aid in learning BASIC.

The computer offers a unique advantage as an educational tool. Each lesson is self-pacing, interactive, and dynamic. It is not like reading a book; you literally talk back to the computer as you learn. You can progress as fast or as slow as you wish. Graphics, animation, and readability make this approach to learning BASIC fun.

During each lesson, there are quick tests to help you gauge your progress. Unlike written tests, the computer will explain why a particular answer is wrong. At the end of each lesson, and before each test, the program will ask if you wish to repeat the last lesson.

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The Lessons

The BASIC Course consists of eight Lessons and an Introduction. The Introduction explains how to load and use each Lesson. Some Lessons are made up of smaller sub-segments, such as LESSON1, L1P2 (Part 2 of Lesson 1), L1P3 (Part 3 of Lesson 1), L1P4 (Part 4 of Lesson 1).

Each Lesson or sub-segment may be studied or reviewed at any time. Once the first part of a Lesson (e.g. LESSON1) is loaded into the computer, it will automatically load the rest of the Lesson (L1P2, L1P3, L1P4, etc.) as needed. To stop a Lesson, or go to a sub-segment, press the [BREAK] key. When READY>_ appears, type [R][U][N][ ]["] and the name of the desired Lesson or segment. You must press [ENTER] after responding to questions that appear on the screen.

Lesson 1

Lesson 1 (Beginning BASIC) is essentially your introduction to the world of computers. It explains the way BASIC works, the use of line numbers, and how BASIC programs are structured. Loading instructions and their contents are as follows:

[R][U][N][ ]["][L][E][S][S][O][N][1]["] [ENTER]

Introduction	Line Numbers	INPUT
LIST	Variables	Line Editing
PRINT	NEW	Disk Storage
RUN		

[R][U][N][ ]["][L][1][P][2]["] [ENTER]

PRINT Spacing	PRINT@	END
Expressions	Hierarchy	LET
PRINT TAB	Strings	

[R][U][N][ ]["][L][1][P][3]["] [ENTER]

IF/THEN	Operator Meanings	GOTO
READ/DATA	Arrays	DIM
FOR/NEXT	Looping	

RUN "L1P4" ENTER

ABS	INT	RND
GOSUB/RETURN	ON...GOSUB	ON...GOTO
RESTORE		

Graphics Statements:

SET	RESET	POINT

Lesson 2

Lesson 2 shows you how to make changes to programs, using the Editing functions and the Editing commands. Lesson 2 also covers shortcuts in Editing that let you make changes quickly and easily.

RUN "LESSON2" ENTER

Using Edit	LIST	EDIT
SPACE BAR	D elete	I nsert
SHIFT UP ARROW	CURSOR MOTION	S earch
H ack	X (end of line)	K ill
C hange	L ist edited line	A (cancel)
Q (quit and exit)	E (save and exit)	

Lesson 3

Lesson 3 covers the different types of variables and variable names allowed in BASIC. The lesson explains in detail how to use the most efficient type of variable for any application. Lesson 3 also examines the use of arrays to hold large quantities of related information.

RUN "LESSON3" ENTER

Integer	Single Precision	Exponential Form
Double Precision	Strings	Type Declaration
Arrays	DIM	

Lesson 4

Lesson 4 details the use of BASIC Operators and Commands. The operators (arithmetic and logical) are explained in full and their uses. The BASIC Commands are listed and explained.

RUN "LESSON4" ENTER

Operators

Arithmetic Operators:

Addition	Subtraction	Multiplication
Division	Exponentiation	Grouping

Relational Operators:

Less Than	Greater Than	Equal to
Less Than or Equal	Greater Than or Equal	Not Equal to

Logical Operators:

True Expression	False Expression	AND
OR	NOT	

String Operators:

+ (Plus)	Less Than	Greater Than
Equal to	Less Than or Equal	Not Equal to
Greater Than or Equal		

Operator Hierarchy

Commands

AUTO	CLEAR	CSAVE
CLOAD?	CLOAD	STOP
CONT	RUN	SYSTEM
TRON/TROFF		

Lesson 5

Lesson 5 explains how to enter and store data, and retrieve it. Saving data on tape for later use is covered in detail.

RUN□"LESSON5" ENTER

Input/Output (I/O) Statements

INPUT#	INKEY$	INPUT
READ	PRINT	INP
PRINT USING	LPRINT	PRINT@
PRINT#	OUT	LPRINT USING
! and % Field Specifiers		# Field Specifier

RUN□"L5P2" ENTER

Input/Output (Cont.)	LPRINT	LPRINT USING
LLIST	Cassette Data Files	PRINT#
INPUT#	INP	OUT
INKEY$		

Lesson 6

Lesson 6 explains how to manipulate text strings and use them for comparisons and logical operations.

RUN□"LESSON6" ENTER

String Functions:

ASC	CHR$	FRE
LEN	LEFT$	MID$
RIGHT$	STR$	STRING$
VAL		

String Operations:

ASCII Codes	ASCII Function	CHR$ Function
Relational Operators	LEFT$ Function	MID$ Function
RIGHT$ Function	LEN Function	VAL Function
STR$ Function	FRE Function	

Lesson 7

Lesson 7 details the special features of Model III BASIC and how to use these features.

RUN"LESSON7" ENTER

? (PRINT)	' (REM)	Compact Lines
NEXT	Ending Quotes	IF...THEN...ELSE
ON ERROR GOTO	RESUME	ERROR Statement
ERR Function	ERL Function	

RUN"L7P2" ENTER

Special Character Set	Special Options

Lesson 8

Finally, Lesson 8 completes the course with a section on machine language subprograms that are called from a BASIC program.

RUN"LESSON8" ENTER

Machine Language	SYSTEM Command	PEEK
POKE	USR Function	VARPTR Function

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Loading the Lessons

It is assumed you have reviewed the general operational procedures for your equipment as explained in the Disk System Owner's Manual and are now aware of how to power on your computer, load the Disk Operating System, etc.

Before you use the BASIC Course, it is strongly recommended that you make a Backup copy of each diskette included in this course. If you are not familiar with Backup and Format functions, please refer to page 11.

1. Turn on the system. If you are not familiar with the Model III System, please refer to your Disk System Owner's Manual for System Start Up (Power Up Sequence).

2. Insert the BASIC Course Backup diskette in Drive 0 (the bottom built-in drive, nearest the keyboard). Insert the Drive 1 diskette in Drive 1 (top drive).

3. Press the orange Reset button (in the upper-right corner of the keyboard), and go to the TRSDOS mode.

4. Type: [B][A][S][I][C] and press [ENTER].

5. **The screen will show:** **You type:**

   How Many Files? Press [ENTER]

   Memory Size? Press [ENTER]

6. The screen will display the BASIC version number, the amount of memory left (Free Bytes), and number of files allocated. The last line on the screen shows: READY >_.

   You type: [R][U][N][ ]["][I][N][T][R][O]["] and press [ENTER].

The Introduction has detailed instructions on using the program and loading the lessons.

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Backup Instructions

A Backup consists of two processes:

1. Format (or prepare) a blank diskette for information storage. (You can also re-use an old disk.) The Format process is done automatically if needed when you make a Backup.

2. Backup (or copy) all the information from the original diskette to the new formatted disk.

Here is the step-by-step Backup procedure: (If the computer is on, and at TRSDOS Ready, you may skip steps 1, 4, and 5.)

1. Turn on the Model III computer (the power switch is located about 3 inches from the front, on the right side of the computer, underneath the edge). The bottom diskette drive light will flash briefly. The screen will stay dark. This is normal.

2. Insert the original Program diskette (to be copied) in Drive 0 (the bottom diskette drive, nearest the keyboard). Insert the diskette with the label up. The small square notch in the diskette will be to your left. Close the diskette drive door firmly.

3. Insert the blank diskette (or a diskette you wish to re-use) in Drive 1 (the upper drive), and close the drive door.

4. Press the orange Reset button (in the upper-right corner of the keyboard).

5. The screen will show: Enter Date (MM/DD/YY)?

   Type today's date and press [ENTER]. (January 9, 1981 = [0][1][/][0][9][/][8][1])

   The screen will show: Enter Time (HH:MM:SS)?

   Press [ENTER]. TRSDOS Ready will appear with a line of dots.

6. Type: [B][A][C][K][U][P][ ][:][0][ ][:][1] and press [ENTER].

7. The screen will show: SOURCE Disk Master Password?.

   Type: [P][A][S][S][W][O][R][D] and press [ENTER].

If you are re-using an old diskette, one or two additional questions may appear, depending on the previous contents of the diskette. You may see:

Diskette contains DATA. Use Disk or not?

or:

Do you wish to RE-FORMAT the diskette?

If the questions appear, type [Y] **and press** [ENTER] **for each question.**

The computer will format the diskette (in Drive 1), read data from the program diskette (in Drive 0), then transfer the data to the copy diskette (in Drive 1).

8. **When the Backup is done, you'll see:** ** Backup Complete**. **You will return to TRSDOS Ready. The diskette in Drive 1 is now identical to the program diskette in Drive 0.**

9. **Remove the original program diskette and insert the new copy in Drive 0. Store the original program diskette in a safe place. Write the program name on the copy, using a felt-tip pen.**

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NOTE: Good data processing procedure dictates that the user test the program, run and test sample sets of data, and run the system in parallel with the system previously in use for a period of time adequate to insure that results of operation of the computer or program are satisfactory.

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TRS-80
MODEL III MICRO COMPUTER

Cat. No. 26-2010

Basic Course

Drive 0

TRSDOS™ OPERATING SYSTEM
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